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S/N: 10/709,781

REMARKS

Claims 1-21 are pending in the present application. In the Office Action mailed June 1, 2005, the Examiner provisionally rejected claims 1 and 6 under the judicially created doctrine of obviousness-type double patenting of co-pending Application No. 10/605,022 in view of Lobosco (USP2,636,102). The Examiner next rejected claims 1 and 6 under 35 U.S.C. §103(a) as being unpatentable over Fernicola (USP3,968,340) taken with Kimbrough et al. (USP 4,301,355). Applicant appreciates the indication that claims 7-21 are allowable.

Regarding the rejection of claims 1 and 6 under the judicially created doctrine of obviousness-type double patenting, Applicant does not believe any action is required at this time as the rejection was provisionally made. Nevertheless, Applicant does not believe that claims 1 and 6 are obvious in light of claims 1 and 6 of U.S. Ser. No. 10/605,022 and Lobosco. While Applicant agrees that the reference discloses an automatic metal arc welding system designed to maintain a desired arc voltage through wire feed speed control. The reference, however, neither teaches nor suggests the non-incremental reduction in a difference between a target arc voltage and a desired arc voltage through changes in wire feed speed, as called for in claim 1. Further, there is neither a teaching or suggestion in the reference that a constant current input is fed to the welding system. The reference merely states that the "welding generator 10 supplies welding current to an arc welding circuit..." Col. 3, ll. 14-16. As such, any conclusion that one skilled in the art would be motivated to combine the system of the reference and that called for in claim 1 of U.S. Ser. No. 10/605,022 requires the application of impermissible hindsight. As such, notwithstanding the "provisionality" of the Examiner's rejection, Applicant does not believe that the rejection can be sustained in light of the teachings of the reference.

The Examiner also rejected claims 1 and 6 as being unpatentable over the combination of Fernicola and Kimbrough et al. The Examiner concluded that "it is considered obvious that the arc voltage control in Fernicola (3,968,340) is of this conventional negative feed-back type wherein a sensed voltage is compared to a reference value and used to control wire feed speed to reduce the difference as exemplified in the patent of Kimbrough et al. (4,301,355) in view of the references in Fernicola (3,968,340) to conventional control systems using arc voltage as the feedback control variable." Office Action, June 1, 2005, pp. 3-4. Applicant disagrees.

Fernicola discloses a "MIG Starting System" that includes "circuit means which is responsive to the short circuit condition for maintaining the electrode feed rate at the inch setting for a predetermined period of time sufficient to enable an arc to firmly establish itself." Abstract. While Fernicola discloses that an "arc voltage sensing circuit 22 provides an output voltage 18

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which is proportional to the voltage across the arc and which is used in a conventional manner as a variable feedback input signal to the motor governor control 16 for adjusting the feed rate of the electrode in response to variations in the arc voltage level," there is no teaching or suggestion that the reduction in the difference between target arc voltage and actual arc voltage is non-incremental. There is nothing in the disclosure of Femicola to suggest that the voltage regulation is achieved in the non-incremental manner that is claimed. In fact, the reference teaches that "the electrode feed rate is therefore relatively slowly adjusted from the inch speed to the final welding speed as the arc length increases to the operating arc length." Col. 3, ll. 41-44. As such, at best, the reference teaches the adjustment of wire speed feed to incrementally reduce the difference between a target arc voltage and an actual arc voltage, which is in stark contrast to that which is called for in claim 1.

Also, the Examiner has asserted that one skilled in the art would have been motivated to use a "conventional" voltage control system with the apparatus of Femicola. As an example of such a conventional system, the Examiner refers to the gas metal arc welding system taught by Kimbrough et al. However, one would not be motivated to combine the references in the manner suggested by the Examiner to arrive at the claimed invention. Specifically, Kimbrough et al. discloses a GMAW system operable in either a Constant Voltage Constant Wire Feed (CVCW) mode or in a Constant Current On Demand Wire Feed (CCODW) mode. In short, Kimbrough et al. teaches a GMAW operable in a constant voltage or a constant current mode. In the constant voltage mode (i.e. maintain actual arc voltage at or near a target arc voltage), the reference is clear that wire feed speed is fixed. Specifically, Kimbrough et al. discloses that "when the switch arms 32 and 33 are thrown to the CVCW terminals, the wire feed is maintained constant by a wire feed control F which provides a fixed signal to the wire servo block G through the switch arm 33." Col. 9, ll. 1-5. Accordingly, Kimbrough et al. teaches a system that for a constant voltage control, wire feed speed is fixed.

In contrast, claim 1 calls for the automatic adjustment of wire feed speed to reduce a difference between a target arc voltage and an actual arc voltage. In other words, the claimed invention, as defined by claim 1, includes a controller that automatically adjusts wire feed speed to achieve a relatively constant arc voltage. Kimbrough et al. teaches a fixed wire feed speed when in a constant voltage mode.

Therefore, not only is there not a motivation to combine the references in the manner suggested by the Examiner, but the references also fail to teach or suggest each and every element called for in claim 1. Neither reference teaches the non-incremental reduction in the difference

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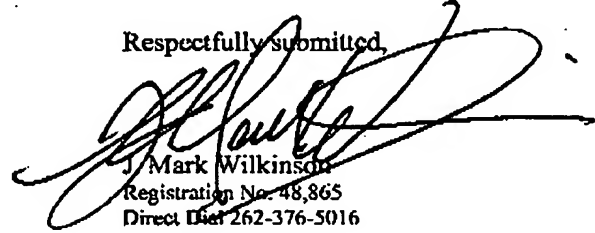
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between a target arc voltage and an actual arc voltage. Moreover, Kimbrough et al., upon which the Examiner relied to teach an arc voltage control wherein actual arc voltage is compared to a target arc voltage, teaches a control scheme wherein wire feed speed is fixed during a constant voltage mode. Accordingly, Applicant believes that which is called for in claims 1 and 6 to be patentably distinct from the art of record.

Therefore, in light of at least the foregoing, Applicant respectfully believes that the present application is in condition for allowance. As a result, Applicant respectfully requests timely issuance of a Notice of Allowance for claims 1-21.

Applicant appreciates the Examiner's consideration of these Remarks and cordially invites the Examiner to call the undersigned, should the Examiner consider any matters unresolved.

Respectfully submitted,



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